

What is claimed is:

1. A wireless network providing global paging of mobile stations service by the network comprising:

a pool of mobile switching centers for servicing mobile stations within a specified service area of said wireless network; and

a radio configuration database defining a plurality of global paging areas within said specified service area;

wherein said radio configuration database is accessible by any mobile switching center in said pool to allow paging of a mobile station roaming within said specified service area according to one or more global paging areas.

2. The wireless network of claim 1 wherein said radio configuration database is structured in a hierarchy including cells, locations areas, and base station controller or radio network controller for each global paging area in the specified service area.

3. The wireless network of claim 1 wherein said radio configuration database includes a first field for storing the cell identity of cells within said specified service area.

4. The wireless network of claim 3 wherein said radio configuration database further includes a second field for storing the identity of location areas within said specified service area.

5. The wireless network of claim 4 wherein said radio configuration database further includes a third field for storing the identity of base station controllers or radio network controllers within said specified service area.

6. The wireless network of claim 5 wherein any mobile switching center in said pool is capable of paging a mobile station within said specified service area by accessing said radio configuration database and determining the cell identity, location area identity, and base station controller/radio network controller identity of a mobile station roaming within said specified service area.

7. A method of paging a mobile station within a wireless network comprising a pool of mobile switching centers, the method comprising the steps of:

transmitting a paging request for a mobile station to the wireless network;  
the mobile switching center in which the mobile station is registered paging the mobile station;

responding to the paging request is an answer is received from the mobile station; and

globally paging the mobile station if no answer is received from the mobile station.

8. The method of claim 7 wherein said global paging step further comprises the step of accessing a radio configuration database to obtain the most recent location information for the mobile station.

9. The method of claim 8 further comprising the steps of:  
finding the location area in which the MS was most recently present;  
determining which location area the mobile switching center belongs;  
determining the global paging area to which said location area belongs; and  
paging the mobile station within said global paging area.
10. The method of claim 9 wherein said paging step is performed by paging the mobile station in all location areas within said global paging area.
11. The method of claim 7 wherein said global paging step further comprises the steps:  
of accessing a radio configuration database containing the identity of all cells, location areas, base station controllers/radio network controllers, and global paging areas of the service area of said wireless network; and  
determining the cell, location area, base station controller/radio network controller, and global paging area in which said mobile station was last known to be roaming.
12. The method of claim 11 further comprising the step of transmitting a paging request in said last known global paging area.

13. In a wireless network containing a database for storing a plurality of location area coordinates, a method of globally paging a mobile station within the service area of the wireless network comprising the step of:

populating said database with center and radius coordinates of geographic areas of the wireless network service area; and

paging a mobile station within one or more geographic areas of the wireless network service area using coordinates from said database.

14. The method of claim 13 further comprising the step of increasing the radius coordinate to define a larger geographic areas if paging is unsuccessful.

15. The method of claim 13 wherein said geographic areas correspond to predefined location areas of the wireless network service area.

16. The method of claim 15 wherein said paging step is performed by paging in a location area defined by a center and radius coordinate contained in said database.

17. The method of claim 16 further comprising the steps of :

increasing the radius coordinate to define a substantially circular paging area if paging within said location area is unsuccessful;

defining a global paging area that includes all neighboring locations area crossed by said circular paging area; and

paging said mobile within said circular paging area.

18. The method of claim 17 wherein said increasing step is performed dynamically.

19. The method of claim 17 wherein the size of said circular paging area is dynamically modified by the further steps of:

storing "n" number of location areas where the mobile station was roaming;

storing time stamps indicating when the mobile station entered "n" last location areas;

determining from the time stamps if the mobile station is roaming fast or slow;

and

increasing the radius of the circular paging area in proportion to the roaming speed of the mobile station.

20. The method of claim 19 wherein the radius of the circular paging area is increased slightly when the mobile station is roaming slowly.

21. The method of claim 19 wherein the radius of the circular paging area is increased more when the mobile station is roaming fast.